

Name: _____

Date: _____

A2&T: Solving Radical Equations

Do Now

1) Factor completely: $4x^3 + 28x^2 - 9x - 63$

2) Simplify: $\frac{4x^6y^8 - 3x^8}{12x^3}$

Solving Radical Equations:

An equation that contains at least one radical term with a variable in the radicand is called a **radical equation**. For example, $\sqrt{2x - 3} = 5$ is a radical equation. Since the radical is a square root, we can solve this equation by squaring both sides of the equation.

$$\begin{array}{l} \text{Solution:} \\ \sqrt{2x - 3} = 5 \\ (\sqrt{2x - 3})^2 = 5^2 \\ 2x - 3 = 25 \\ 2x = 28 \\ x = 14 \end{array}$$

$$\begin{array}{l} \text{Check:} \\ \sqrt{2x - 3} = 5 \\ \sqrt{2(14) - 3} \stackrel{?}{=} 5 \\ \sqrt{28 - 3} \stackrel{?}{=} 5 \\ \sqrt{25} \stackrel{?}{=} 5 \\ 5 = 5 \checkmark \end{array}$$

Practice:

1) $\sqrt{x+6} = x$

2) $\sqrt{x+1} + 5 = 0$

3) $\sqrt{2-x} = x$

4) $x = 2\sqrt{2x-3}$

$$5) \sqrt{2x-4} = x-2$$

$$6) \sqrt{x+1} = x-1$$

$$7) \sqrt{x+6} + x = 6$$

$$8) \sqrt{x+3} = 3-x$$